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EXAMINER	
VERBITSKY, GAIL KAPLAN	
ART UNIT	PAPER NUMBER
2859	

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/806,518	<b>Applicant(s)</b> LUGUE ET AL	
	<b>Examiner</b> Gail Verbitsky	<b>Art Unit</b> 2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7, 12, 16, 17, 21, 23-27, 30 and 31 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-7, 12, 16-17, 23-27, 30-31 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al. (U.S. 6163662) [hereinafter Martin] in view of the Prior art by Martin (col. 1) [hereinafter Prior Art].

Martin discloses in Fig. 6 a device used for identifying a qualitative characteristics (abstract) and properties (col. 7, line 9) of printing media in a media processing device. The media processing device comprising a thermal (IR) energy source (heater) 25, a thermal energy sensor 27. The heater 25 and the sensor 27 are arranged along a media feed path 32 so as to accommodate transfer/ heat flux (diffusion) of the thermal energy to the media 18 by the heater 25, and also sensing the diffused energy to determine a heat capacity of the media, the heat capacity which, as has been shown above, is indicative of the type of the media. The temperature obtained by temperature sensor 27, is indicative of a qualitative property as a heat capacity (col. 7, lines 18-19).

As shown in Fig. 6, the heater 25 and the sensor 27 are oriented in a line parallel with the media feed path 18, the sensor 27 is being downstream from the heater

Art Unit: 2859

25 (col. 6, line 61, col. 7, line 2). The media-processing device is a printer (col. 3, lines 5-10).

It is also shown in Fig. 6, that the device includes a shield/ housing disposed about the heater 25 so as to direct the thermal energy generated by the heater 25 toward the feed path, and a shield/ housing is disposed about the sensor 27 so as to direct the heat radiated from the feed path toward the sensor 27. As shown in the drawings of Martin, a heater is a non-contact heater and sensors are non-contact sensors. The media-processing device is a printer (col. 3, lines 5-10).

To summarize: Martin teaches that said printer/ media processing device comprises media feed means configured to pass media downstream along a media feed path 32, a heating means 35 disposed along the feed path 32 for applying thermal energy to the media 18 passing downstream along the media feed path 32, the temperature sensing means 27 disposed along the feed path 32 downstream the heater 25 for selectively sensing temperature of the media 18 passing downstream from the heater 25. In another configuration, temperature sensor 22b outputs temperature and connected to the processor 72 (entire col. 7) for receiving an output representative of the sensed temperature, determining heat capacity, of the media based on the temperature, the heat capacity and the temperature (indicative of the media type).

Martin does not identify the media weight.

Prior Art teaches that two variables of printing media affecting the temperature of fusing, are weight and water content that manifest themselves as such qualitative characteristics as a heat capacity (col. 1, lines 32-40). Therefore, by knowing a heat

Art Unit: 2859

capacity of the printing media, the weight and water content of the media could be found. This would imply, that by knowing heat capacity, the weight of the media could be determined, or vice versa, by knowing the weight, the heat capacity could be determined. Thus, by determining the heat capacity, the weight of the media (identification, i.e., N gram) could be determined.

This would also imply, that if, for example, the weight or water content are excessive, one could conclude that the printing media is a bad type, however, if the weight and the water content are within predetermined limits, one could conclude that the printing media is a good type.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device/ method, disclosed by Martin, so as to identify/ determine the heat capacity which is indicative of the media weight, as taught by Prior art, in order to be able to control the final print quality by modifying of already known weight of the media.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin and Prior Art as applied to claims 1-5 above, and further in view of Karlsson (U.S. 6034360).

Martin and Prior art disclose the device as stated above.

Although any heater, in a broad sense considered being an IR (heat energy) heater, they do not teach explicitly that the heater is an infrared heater, as stated in claims 6.

Karlsson teaches that it is very well known in the art to use a resistor as a heater in an infrared radiator.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the heater, disclosed by Martin, with the heater as taught by Karlsson, because both of them are alternate types of heating devices which will perform the same function, of heating the media of interest, if one is replaced with the other.

4. Claims 12, 15, 17, 21, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin and Prior art as applied to claims 1-5 above, and further in view of Hammond.

Martin and Prior art disclose the device as stated above.

They do not teach the limitations of claims 12, in combination with the remaining limitations of claims 15, 17, 21 and 27. Although Martin measures the temperature, Martin does not explicitly teach to identify media weight based on sensed temperature compared to a reference temperature, as stated in claim 12.

Hammond teaches to determine (identify/ authenticate) the composition (type) of an unknown sample (media) by using an authentication device (processor) 20 utilizing, among other physical properties, heat capacity and/ or temperature of the unknown sample compared with a reference temperature.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Martin and Prior art, so as to have somewhat an authentication device capable to identify/ authenticate the

Art Unit: 2859

unknown sample based on the heat capacity and/ or temperature, as taught by Hammond, in order to provide the operator with necessary data, so as to allow the operator to make a decision how to use the unknown sample (media).

The method steps will be met during the normal operation of the device stated above.

4. Claims 7, 12, 15, 17, 21, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin and Prior art, as applied to claims 1-5 above, and further in view of Nakamura et al. (U.S. 5599104) [hereinafter Nakamura].

Martin and Prior art disclose the device as stated above.

They do not teach explicitly teach a thermocouple of claim 7, a processor of claim 12, in combination with the remaining limitations of claims 15, 17, 21 and 27. Although Martin measures the temperature, they do not explicitly teach to identify media weight based on sensed temperature compared to a reference temperature, as stated in claim 12.

Nakamura teaches to compare an unknown sample (media) to a reference sample (media) by heating them and sensing the temperature of (thermal energy radiated from) the media of interest and the reference media by thermocouples, the, heat capacity of the media of interest could be found by comparison with the reference media (col. 7, formula 5). Therefore, the unknown media of interest could be characterized/ described. This would imply, that the unknown media could be, at least at some degree, identified. A processor 16 is coupled to both temperature sensors to selectively measure temperature and heat capacity of the media (sample).

Art Unit: 2859

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Martin and Prior Art, so as to modify the processor to make it capable to identify the unknown sample based on the heat capacity, as taught by Nakamura, in order to provide the operator with necessary data, so as to allow the operator to make a decision how to use the unknown sample (media).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Martin and Prior art, so as to use a known behavior reference, as taught by Nakamura, and well known in the art, obtaining a heat capacity which is a known thermo physical property of the sample (media), in order to accurately describe/ identify behavior of the unknown media and thus, to at least some degree, identify the media.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the sensor, disclosed by Martin and Prior art, with a thermocouple, as taught by Nakamura, because both of them are alternate types of temperature sensing devices which will perform the same function, of sensing the temperature of interest, if one is replaced with the other.

The method step will be met during the normal operation of the device stated above.

5. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin, Prior art and Hammond, III ((U.S. 4381154) [hereinafter Hammond] as applied to claims 7, 12, 17, 21, 27 above, and further in view of Cernusak et al. (U.S. 6389241) [hereinafter Cernusak].



Martin, Prior art and Hammond disclose the device as stated above.

They do not explicitly teach the particularly configured processor, as stated in claim 25.

Cernusak teaches that it is very well known in the art to configure the processor of a media processing device to modify the parameters of the fusing subsystem, among which, the transport speed of the fusing subsystem, based on the measurements from sensors, i.e., media type sensors 405, in the media processing device.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further configure the processor in the device disclosed by Martin, Prior art and Hammond, so as to modify the toner fuser based on the media, as taught by Cernusak, in order to provide a proper response to the sensors, so as to prolong the life of the device and protect it from overheating related wear.

The method step will be met during the normal operation of the device stated above.

6. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin, Prior art and Nakamura as applied to claims 7, 12, 15, 17, 21, 27 above, and further in view of Cernusak et al. (U.S. 6389241) [hereinafter Cernusak].

Martin, Prior art and Nakamura disclose the device as stated above.

They do not explicitly teach the particularly configured processor as stated in claim 25.

Cernusak teaches that it is very well known in the art to configure the processor of a media processing device to modify the parameters of the fusing subsystem, among

Art Unit: 2859

which, the transport speed of the fusing subsystem, based on the measurements from sensors, i.e., media type sensors 405, in the media processing device.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further configure the processor in the device disclosed by Martin, Prior art and Nakamura, so as to modify the toner fuser based on the media, as taught by Cernusak, in order to provide a proper response to the sensors, so as to prolong the life of the device and protect it from overheating related wear.

The method step will be met during the normal operation of the device stated above.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin, Prior art and Hammond, as applied to claims 12, 15, 17, 21, 27 above, and further in view of Karlsson.

Martin, Prior art and Hammond disclose the device as stated above.

They do not teach that the heater is an infrared heater, as stated in claim 16.

Karlsson teaches that it is very well known in the art to use a resistor as a heater in an infrared radiator.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the heater, disclosed by Martin, Prior art and Hammond, with the heater as taught by Karlsson, because both of them are alternate types of heating devices which will perform the same function, of heating the media of interest, if one is replaced with the other.

The method step will be met during the normal operation of the device stated above.

Art Unit: 2859

8. Claims 23-24, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin and Prior art in view of Hammond and Weiss (U.S. 4887229).

Martin and Prior art discloses the device as stated above.

They do not explicitly teach means for identification (processor) and the remaining limitations of claims 23-24.

Hammond teaches to determine (identify/ authenticate) the composition (type) of an unknown sample (media) by using an authentication device (processor) 20 utilizing, among other physical properties, heat capacity and/ or temperature of the unknown sample.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the processor, disclosed by Martin and Prior art, so as to make it capable to authenticate to identify/ authenticate the unknown sample based on the heat capacity, as taught by Hammond, in order to provide the operator with necessary data, so as to allow the operator to make a decision how to use the unknown sample (media).

Weiss discloses in Fig. 6 a device comprising a chopper (keyed or switched shield) facing a temperature sensor for selectively interrupting heat radiation (selectively shield) flow between a body (media) of interest and the sensor. Therefore, the heat radiation (temperature) detected by the sensor is in the waveform (pulsed), as shown in Fig. 2b. A data processor 29 is adapted to analyze the pulsed signal from the sensor.

Art Unit: 2859

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Martin and Prior art, so as to have a shield/ chopper for selectively interrupting heat radiation from the body to the sensor, as taught by Weiss, in order to minimize signal-to-noise ratio, as already suggested by Weiss (entire col. 1), in order to improve accuracy of the device.

With respect to "whereby"/"thereby", as stated in claim 23: it has been held that the functional "whereby" statement does not define any structure and accordingly cannot serve to distinguish. In re Mason, 114 USPQ 127, 44 CCPA 937 (1957).

The method step will be met during the normal operation of the device stated above.

9. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin, Prior art, Hammond and Weiss, as applied to claims 23-24 and 30 above, and further in view of Pompei (U.S. 6499877).

Martin, Prior art, Hammond and Weiss disclose the device as stated above.

They do not teach a reference means indicating ambient temperature, so as the processor compares the ambient reference temperature and the measured temperature, as stated in claim 31.

Pompei teaches to measure a surface of interest temperature and an ambient (reference) temperature, wherein the actual temperature is based on the comparison of these two temperatures.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Martin, Prior art, Hammond and Weiss, so as to use a reference (ambient) temperature, as taught by Pompei, to compare to the sensed temperature, so as to provide an instant comparison

Art Unit: 2859

with a reference, and allow instant correction (correcting factor), and thus, improving accuracy of the device.

The method steps will be met during the normal operation of the device stated above.

10. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin in view of Prior art and Hammond, III ((U.S. 4381154) and JP 01242947A [hereinafter JP].

Martin discloses the device in the field of applicant's endeavor. Although Martin teaches to measure physical properties of the media, i.e., heat capacity, thermal conductivity, temperature, such properties known to be indicative of the type of the media, Martin does not explicitly state that the media could be identified (named) based on the measured heat capacity, as stated in claim. 26.

Prior Art teaches that two variables of printing media affecting the temperature of fusing, are weight and water content that manifest themselves as such qualitative characteristics as a heat capacity (col. 1, lines 32-40). Therefore, by knowing a heat capacity of the printing media, the weight and water content of the media could be found. This would imply, that by knowing heat capacity, the weight of the media could be determined, or vice versa, by knowing the weight, the heat capacity could be determined. Thus, by determining the heat capacity, the weight of the media (identification, i.e., N gram) could be determined.

This would also imply, that if, for example, the weight or water content are excessive, one could conclude that the printing media is a bad type, however, if the weight and the water content are within predetermined limits, one could conclude that the printing media is a good type.

Art Unit: 2859

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device/ method, disclosed by Martin, so as to identify/ determine the heat capacity which is indicative of the media weight, as taught by Prior art, in order to be able to control the final print quality by modifying of already known weight of the media.

Hammond teaches to determine (identify/ authenticate) the composition (type) of an unknown sample (media) by using an authentication device 20 utilizing, among other physical properties, heat capacity of the unknown sample.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the processor, disclosed by Martin, so as to be capable to identify/ authenticate the unknown sample based on the heat capacity, as taught by Hammond, in order to provide the operator with necessary data, so as to allow the operator to make a decision how to use the unknown sample (media).

JP teaches a device for determining a heat capacity of a sample by heating one surface (heated patch) of the sample, while another surface (unheated patch) is not heated. JP obtains temperature difference (rise) from heated and unheated patches and heat capacity is calculated (measured).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Martin, so as to heat one portion of the sample (media) and by obtaining temperature difference between the portions, determine heat capacity of the sample (media), as taught by JP, because the

Art Unit: 2859

heat capacity is known to depend on temperature, on the other hand, it is a thermo physical parameter characterizing the sample property.

The method steps will be met during the normal operation of the device stated above.

### ***Response to Arguments***

11. Applicant's arguments with respect to claims 1-7, 12, 16-17, 21, 23-27, 30-31 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related devices and methods.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gail Verbitsky whose telephone number is 571/ 272-2253. The examiner can normally be reached on 7:30 to 4:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571/ 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/806,518

Page 15

Art Unit: 2859

GKV

Gail Verbitsky

Primary Patent Examiner, TC 2800

A handwritten signature in black ink, appearing to read 'G. Verbitsky', written over the printed name.

October 31, 2005